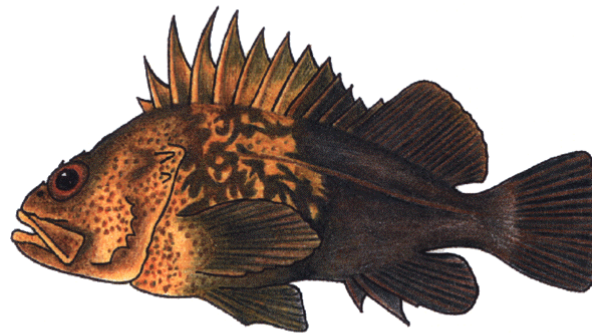


Quillback Rockfish, *Sebastes maliger*

1993-1999 Commercial Catch by Ports & Blocks



Marine Fishery Profiles

Volume 1: Nearshore

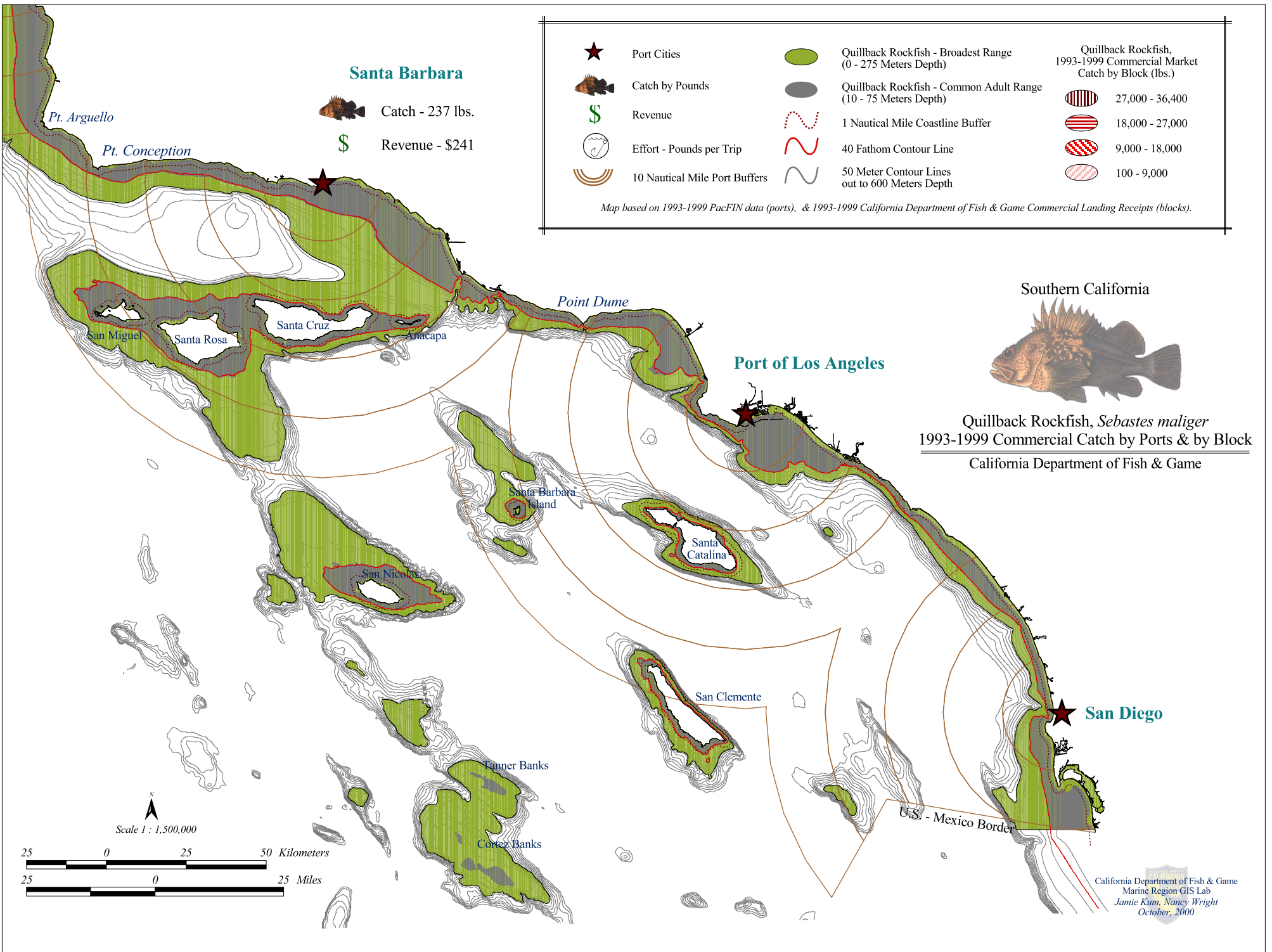
Marine Region GIS Lab

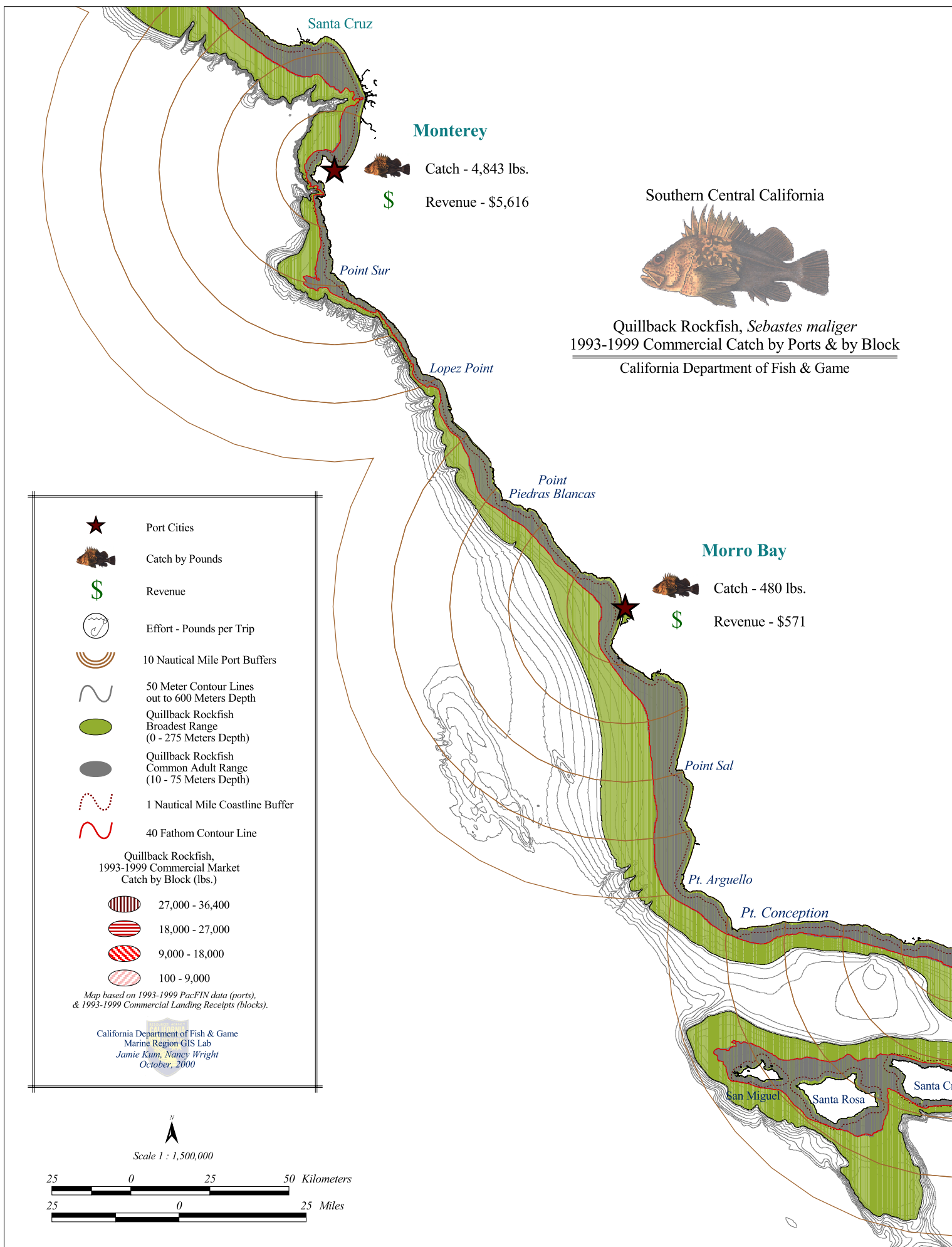
Nancy Wright	Eric Knaggs
Jamie Kum	Bob Leos
Chad King	Colleena Perez



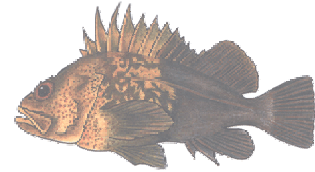
California Department of Fish & Game
Marine Region

December 2000





Northern Central California



Quillback Rockfish, *Sebastes maliger* 1993-1999 Commercial Catch by Ports & by Block

California Department of Fish & Game

Bodega Bay

Catch - 3,615 lbs.

Revenue - \$5,144

San Francisco

Catch - 43,987 lbs.

Revenue - \$88,543

Half Moon Bay

Point Año Nuevo

Santa Cruz

Monterey

Catch - 4,843 lbs.

Revenue - \$5,616

Point Sur

Lopez Point

Point Piedras Blancas

- Port Cities
- Catch by Pounds
- Revenue
- Effort - Pounds per Trip
- 10 Nautical Mile Port Buffers
- 50 Meter Contour Lines out to 600 Meters Depth
- Quillback Rockfish Broadest Range (0 - 275 Meters Depth)
- Quillback Rockfish Common Adult Range (10 - 75 Meters Depth)
- 1 Nautical Mile Coastline Buffer
- 40 Fathom Contour Line

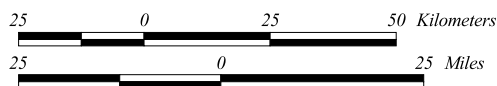
Quillback Rockfish,
1993-1999 Commercial Market
Catch by Block (lbs.)

- 27,000 - 36,400
- 18,000 - 27,000
- 9,000 - 18,000
- 100 - 9,000

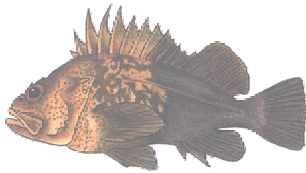
Map based on 1993-1999 PacFIN data (ports),
& 1993-1999 Commercial Landing Receipts (blocks).

California Department of Fish & Game
Marine Region GIS Lab
Jamie Kum, Nancy Wright
October, 2000

Scale 1 : 1,500,000



Northern California



Quillback Rockfish, *Sebastes maliger* 1993-1999 Commercial Catch by Ports & by Block California Department of Fish & Game

- ★ Port Cities
- Catch by Pounds
- \$ Revenue
- Effort - Pounds per Trip
- 10 Nautical Mile Port Buffers
- 50 Meter Contour Lines out to 600 Meters Depth
- Quillback Rockfish Broadest Range (0 - 275 Meters Depth)
- Quillback Rockfish Common Adult Range (10 - 75 Meters Depth)
- 1 Nautical Mile Coastline Buffer
- 40 Fathom Contour Line

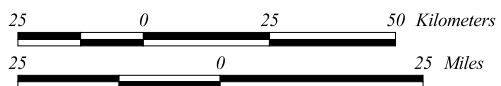
Quillback Rockfish,
1993-1999 Commercial Market
Catch by Block (lbs.)

- 27,000 - 36,400
- 18,000 - 27,000
- 9,000 - 18,000
- 100 - 9,000

Map based on 1993-1999 PacFIN data (ports),
& 1993-1999 Commercial Landing Receipts (blocks).

California Department of Fish & Game
Marine Region GIS Lab
Jamie Kum, Nancy Wright
October, 2000

Scale 1 : 1,500,000



Crescent City



Catch - 41,728 lbs.



Revenue - \$57,606

Eureka



Catch - 11,117 lbs.



Revenue - \$15,108

Cape Mendocino

Punta Gorda

Fort Bragg



Catch - 36,234 lbs.



Revenue - \$70,163

Point Arena

Figure 1. (refer to table 1) CDFG Commercial Receipts Data (1993 - 1999)
Total Pounds of Quillback Rockfish Caught and Average Price per Pound by Month

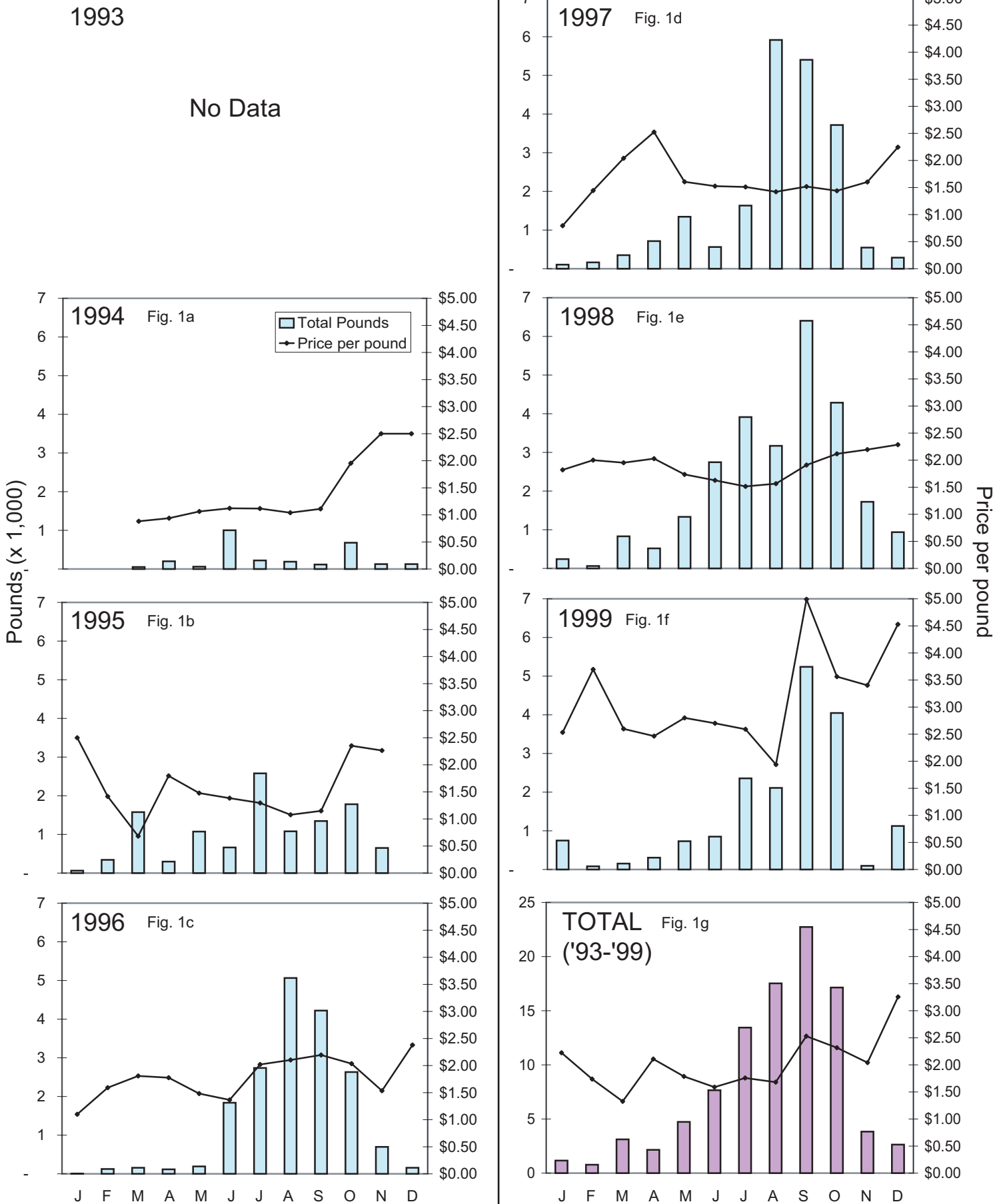


Table 1. (refer to fig. 1) CDFG Commercial Receipts Data (1993 - 1999)
Total Pounds of Quillback Rockfish Caught and Average Price per Pound by Month

1993

No data

1997

Table 1d

Month	Total Pounds	Price per Pound
Jan	106	\$0.79
Feb	163	\$1.44
Mar	350	\$2.04
Apr	713	\$2.52
May	1,344	\$1.61
Jun	562	\$1.53
Jul	1,633	\$1.51
Aug	5,917	\$1.42
Sep	5,403	\$1.52
Oct	3,717	\$1.44
Nov	546	\$1.60
Dec	286	\$2.24
Total	20,739	\$1.53

1994

Table 1a

Month	Total Pounds	Price per Pound
Jan	no data	no data
Feb	no data	no data
Mar	52	\$0.88
Apr	201	\$0.94
May	60	\$1.06
Jun	1,003	\$1.12
Jul	221	\$1.12
Aug	190	\$1.04
Sep	117	\$1.11
Oct	680	\$1.95
Nov	127	\$2.50
Dec	126	\$2.50
Total	2,776	\$1.43

1998

Table 1e

Month	Total Pounds	Price per Pound
Jan	240	\$1.82
Feb	62	\$2.00
Mar	829	\$1.95
Apr	519	\$2.03
May	1,332	\$1.74
Jun	2,746	\$1.63
Jul	3,914	\$1.51
Aug	3,169	\$1.56
Sep	6,405	\$1.91
Oct	4,286	\$2.12
Nov	1,723	\$2.19
Dec	938	\$2.29
Total	26,164	\$1.84

1995

Table 1b

Month	Total Pounds	Price per Pound
Jan	62	\$2.50
Feb	343	\$1.42
Mar	1,577	\$0.68
Apr	296	\$1.80
May	1,073	\$1.48
Jun	663	\$1.38
Jul	2,578	\$1.29
Aug	1,079	\$1.08
Sep	1,346	\$1.15
Oct	1,781	\$2.35
Nov	650	\$2.26
Dec	no data	no data
Total	11,448	\$1.44

1999

Table 1f

Month	Total Pounds	Price per Pound
Jan	749	\$2.53
Feb	82	\$3.70
Mar	152	\$2.60
Apr	306	\$2.46
May	731	\$2.80
Jun	848	\$2.70
Jul	2,357	\$2.59
Aug	2,110	\$1.94
Sep	5,240	\$4.99
Oct	4,046	\$3.56
Nov	94	\$3.40
Dec	1,125	\$4.53
Total	17,840	\$3.58

1996

Table 1c

Month	Total Pounds	Price per Pound
Jan	2	\$1.10
Feb	124	\$1.59
Mar	156	\$1.81
Apr	116	\$1.78
May	192	\$1.48
Jun	1,838	\$1.37
Jul	2,738	\$2.02
Aug	5,064	\$2.10
Sep	4,222	\$2.20
Oct	2,632	\$2.04
Nov	697	\$1.53
Dec	156	\$2.38
Total	17,936	\$1.99

TOTAL
'93 - '99

Table 1g

Month	Total Pounds	Price per Pound
Jan	1,159	\$2.22
Feb	774	\$1.74
Mar	3,117	\$1.33
Apr	2,151	\$2.11
May	4,732	\$1.79
Jun	7,659	\$1.59
Jul	13,440	\$1.76
Aug	17,529	\$1.68
Sep	22,733	\$2.53
Oct	17,141	\$2.32
Nov	3,836	\$2.04
Dec	2,631	\$3.26
Total	96,903	\$2.06

Figure 2. (refer to table 2) Pacific Fisheries Information Network Data (1993 - 1999)
Total Pounds of Quillback Rockfish Caught and Average Price per Pound by Month

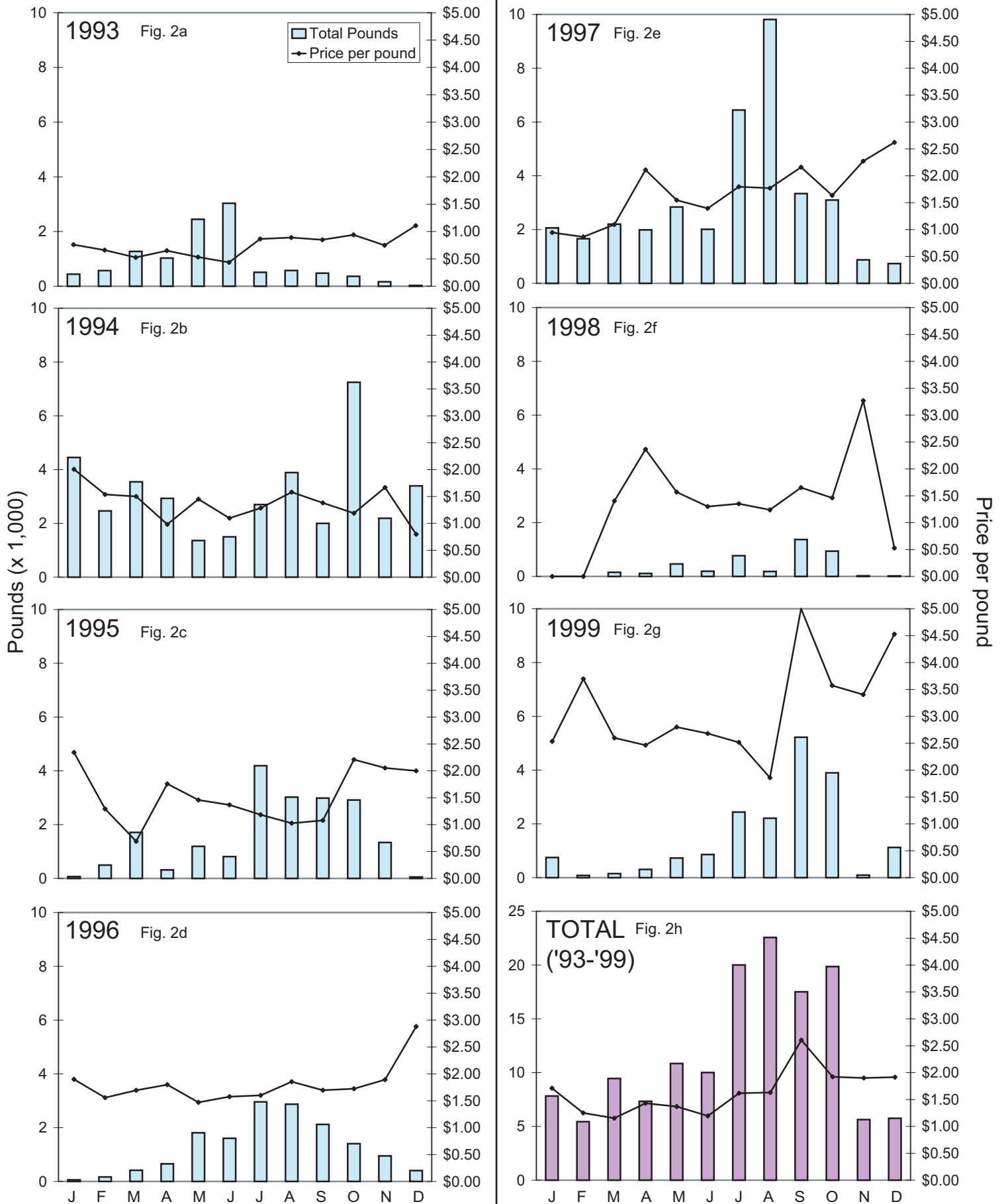


Table 2. (refer to fig. 2) Pacific Coast Fisheries Information Network Data (1993 - 1999)
Total Pounds of Quillback Rockfish Caught and Average Price per Pound by Month

1993
Table 2a

Month	Total Pounds	Price per Pound
Jan	440	\$0.76
Feb	571	\$0.66
Mar	1,273	\$0.53
Apr	1,029	\$0.65
May	2,446	\$0.53
Jun	3,031	\$0.44
Jul	508	\$0.86
Aug	573	\$0.89
Sep	478	\$0.85
Oct	362	\$0.94
Nov	162	\$0.75
Dec	28	\$1.11
Total	10,901	\$0.60

1997
Table 2e

Month	Total Pounds	Price per Pound
Jan	2,061	\$0.94
Feb	1,659	\$0.86
Mar	2,201	\$1.09
Apr	1,988	\$2.11
May	2,840	\$1.55
Jun	2,008	\$1.39
Jul	6,445	\$1.80
Aug	9,812	\$1.77
Sep	3,335	\$2.16
Oct	3,097	\$1.63
Nov	873	\$2.27
Dec	733	\$2.62
Total	37,052	\$1.68

1994
Table 2b

Month	Total Pounds	Price per Pound
Jan	4,451	\$2.01
Feb	2,464	\$1.54
Mar	3,544	\$1.50
Apr	2,930	\$0.98
May	1,360	\$1.45
Jun	1,499	\$1.10
Jul	2,700	\$1.28
Aug	3,888	\$1.58
Sep	1,999	\$1.38
Oct	7,247	\$1.19
Nov	2,192	\$1.67
Dec	3,396	\$0.80
Total	37,670	\$1.38

1998
Table 2f

Month	Total Pounds	Price per Pound
Jan	no data	no data
Feb	no data	no data
Mar	154	\$1.40
Apr	110	\$2.36
May	465	\$1.57
Jun	194	\$1.30
Jul	772	\$1.35
Aug	185	\$1.24
Sep	1,374	\$1.65
Oct	939	\$1.46
Nov	26	\$3.27
Dec	19	\$0.53
Total	4,238	\$1.53

1995
Table 2c

Month	Total Pounds	Price per Pound
Jan	67	\$2.34
Feb	494	\$1.29
Mar	1,712	\$0.69
Apr	315	\$1.76
May	1,192	\$1.46
Jun	810	\$1.37
Jul	4,189	\$1.18
Aug	3,023	\$1.03
Sep	2,986	\$1.08
Oct	2,914	\$2.21
Nov	1,337	\$2.05
Dec	52	\$2.00
Total	19,091	\$1.36

1999
Table 2g

Month	Total Pounds	Price per Pound
Jan	749	\$2.53
Feb	82	\$3.70
Mar	152	\$2.60
Apr	306	\$2.46
May	732	\$2.80
Jun	860	\$2.68
Jul	2,438	\$2.52
Aug	2,211	\$1.86
Sep	5,224	\$5.00
Oct	3,900	\$3.57
Nov	94	\$3.40
Dec	1,125	\$4.53
Total	17,873	\$3.55

1996
Table 2d

Month	Total Pounds	Price per Pound
Jan	59	\$1.90
Feb	167	\$1.56
Mar	415	\$1.69
Apr	655	\$1.80
May	1,811	\$1.47
Jun	1,605	\$1.58
Jul	2,958	\$1.60
Aug	2,872	\$1.85
Sep	2,119	\$1.70
Oct	1,403	\$1.72
Nov	949	\$1.89
Dec	403	\$2.88
Total	15,416	\$1.72

TOTAL
'93 - '99
Table 2h

Month	Total Pounds	Price per Pound
Jan	7,827	\$1.71
Feb	5,437	\$1.25
Mar	9,451	\$1.15
Apr	7,333	\$1.43
May	10,846	\$1.37
Jun	10,007	\$1.19
Jul	20,010	\$1.62
Aug	22,564	\$1.63
Sep	17,515	\$2.60
Oct	19,862	\$1.92
Nov	5,633	\$1.90
Dec	5,756	\$1.92
Total	142,241	\$1.71

Abbreviated Life History of the Quillback Rockfish (*Sebastes maliger*)

The quillback rockfish is a component of central and northern California's nearshore benthic assemblage. Quillback rockfish are relatively small, and are of stout morphology; a characteristic common among nearshore *Sebastes* found in close association with the bottom. They are usually orange-brown to black in color with a yellow or orange pale area between the eye and pectoral fin.

Distribution, Stock Structure and Migration

Quillback rockfish are known from the Gulf of Alaska to San Miguel Island in southern California. They are considered common between southeast Alaska and northern California. They are considered a shallow to moderate depth species although they rarely occur to depths of 900 ft.

No stock structure has been determined for quillback in California.

Like other *Sebastes* of shallow, benthic habitat, individual quillback rockfish are not known to range far. Tagging studies in central California and Washington have shown quillback to be residential (no movement other than diurnal) or to show movement of less than 6 miles. They have also demonstrated homing ability and specific diurnal movement patterns.

Age and Growth

In California, quillback rockfish have been aged to 15 yr, but are known to live longer: They have been aged to 76 yr in Canada. Quillback can grow to 24 inches.

Reproduction, Fecundity and Seasonality

In California, size at first maturity as well as 50% maturity for males is 8.7 in. TL (4 yr.), and for females is 10.2 in. TL (6 yr.) As with all *Sebastes*, quillback have internal fertilization and are viviparous. In California, mating takes place in the late winter/early spring, and parturition April through July; with a peak in May and June. After roughly one or two months in the plankton, they begin to settle near shore.

Natural Mortality

Natural mortality (M) values have been calculated for quillback rockfish stocks in Washington. It has been calculated to be 0.1253 via tag and recapture methods, and 0.115 via Hencke survivorship/age frequency curve.

Diseases

No information on disease in quillback rockfish was found.

***Predator/Prey
Relationships***

As planktonic larvae, quillback rockfish are known to consume nauplii invertebrate eggs and copepods. After they settle in the shallow, nearshore areas they remain zooplanktivorous and feed on crustaceans. As adults their habit is more benthic, and they are known to feed on a variety of prey such as crustaceans; small fish, including rockfishes and flatfishes; bivalves and fish eggs.

As juveniles, they are preyed upon by fishes, including larger rockfishes (such as yelloweye), lingcod, cabezon and salmon. Various marine birds and pinnipeds take juvenile quillback as well. Adults are also subject to predation by larger piscivorous fishes including some sharks, as well as pinnipeds, and possibly, river otters.

Competition

Though quillback rockfish occur with a host of other nearshore benthic species, no information on competition was found.

Critical Habitat

The larvae of quillback rockfish are planktonic. After about one to two months in the plankton, they begin to settle near shore. Young-of-the-year quillbacks are found among relatively shallow, low-relief rocky substrate and shallow, vegetated habitats such as kelp and eelgrass beds. Juveniles tend to inhabit the very nearshore benthos as well, and are found over both low and high rocky substrate. Adults are most often found in deeper water and are solitary reef-dwellers living in close association with the bottom. They are often seen perched on rocks or taking shelter in crevices and holes. Adults have also been noted to retreat to eelgrass beds at night. Quillback are also associated with the rock-sand interface, but are rarely seen in the open away from suitable cover.

Status of Stocks

No stock assessment has been done for this species. Quillback rockfish are a minor component of the nearshore recreational fishery with decreasing occurrence south of northern California. They are also a component of the nearshore commercial fishery.